

AMENDED CLAIMS 1, 16 AND 18

---

1. (Amended) A method for locating an element of interest contained in a three-dimensional object comprising the steps of:

a. providing a set of digitized stereotaxic images having positions of homologous regions of interest corresponding to the element of interest and appearing in the set of stereotaxic images;

b. selecting in a first stereotaxic image a first target region of interest having a target pixel;

c. matching the first region of interest with a second region of interest homologous to the first region of interest and appearing in a second region of interest;

d. matching a generated target window of chosen dimensional characteristics and containing the target region of interest around the selected target pixels;

e. determining a set pixels in the second image according to a predetermined selection criterion so as to generate a second window having the same dimensional characteristics as the target window around each selected pixel;

f. processing a correlation between the gray-scale levels of the pixels in each second window to obtain a correlation for each second window; and

g. using the correlation values to identify the region of interest homologous to the target region of interest and [:] thereby minimize the risk of matching error between the homologous regions of interest.

---

16. (Amended) A method for locating an element of interest contained in a three-dimensional object comprising the steps of:

a. providing a set of digitized stereotaxic images having positions of homologous regions of interest corresponding to the element of interest and appearing in the set of stereotaxic images;

b. selecting in a first stereotaxic image of a first target region of interest;

c. selecting in a second stereotaxic image on the basis of a first automatic matching of at least one second region of interest which may be homologous to the target region;

d.. determining the spatial position of a candidate pixel of a candidate element of interest corresponding to the two regions of interest;

e.. determining the position, in a third stereotaxic image, of a projected pixel corresponding to the projection into the third stereotaxic image of the candidate pixel;

f.. providing a second automatic matching between the target region of interest and a vicinity of the projected pixel; and

g.. defining a projected region of interest so as to minimize the risk of matching errors between the homologous regions of interest.

---

18. (Amended) The method of claim 17 wherein the set of second regions obtained is ordered in the decreasing order of their probability of being in the region homologous to the target region;

wherein the set of projected regions obtained is ordered in the decreasing order of their probability of being the region of homologous to the target region to form a list of correlated values ranked in decreasing order; and

wherein the region homologous to the target region is selected as being the one [whose product of the respective ranks of the two orderings is a minimum.] based upon such ranking.

---

WHAT IS CLAIMED IS:

1. A method for locating an element of interest contained in a three-dimensional object comprising the steps of:

- a. providing a set of digitized stereotaxic images having positions of homologous regions of interest corresponding to the element of interest and appearing in the set of stereotaxic images;
- b. selecting in a first stereotaxic image a first target region of interest having a target pixel;
- c. matching the first region of interest with a second region of interest homologous to the first region of interest and appearing in a second region of interest;
- d. matching a generated target window of chosen dimensional characteristics and containing the target region of interest around the selected target pixels;
- e. determining a set pixels in the second image according to a predetermined selection criterion so as to generate a second window having the same dimensional characteristics as the target window around each selected pixel;
- f. processing a correlation between the gray-scale levels of the pixels in each second window to obtain a correlation for each second window; and
- g. using the correlation values to identify the region of interest homologous to the target region of interest and thereby minimize the risk of matching error between the homologous regions of interest.

16. A method for locating an element of interest contained in a three-dimensional object comprising the steps of:

- a. providing a set of digitized stereotaxic images having positions of homologous regions of interest corresponding to the element of interest and appearing in the set of stereotaxic images;
- b. selecting in a first stereotaxic image of a first target region of interest;
- c. selecting in a second stereotaxic image on the basis of a first automatic matching of at least one second region of interest which may be homologous to the target region;
- d.. determining the spatial position of a candidate pixel of a candidate element of interest corresponding to the two regions of interest;
- e.. determining the position, in a third stereotaxic image, of a projected pixel corresponding to the projection into the third stereotaxic image of the candidate pixel;

f.. providing a second automatic matching between the target region of interest and a vicinity of the projected pixel; and

g.. defining a projected region of interest so as to minimize the risk of matching errors between the homologous regions of interest.

18. The method of claim 17 wherein the set of second regions obtained is ordered in the decreasing order of their probability of being in the region homologous to the target region;

wherein the set of projected regions obtained is ordered in the decreasing order of their probability of being the region of homologous to the target region to form a list of correlated values ranked in decreasing order; and

wherein the region homologous to the target region is selected as being the one based upon such ranking.